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ABSTRACT

The Chinese language has long been regarded, mostly by historians and philosophers, as an inadequate vehicle for developing science. This is because the Chinese have developed only correlational logic, analogical thought and relational thinking, which are inappropriate to science. The cause is said to be the structure of Chinese, specifically: (1) the subjectless nature; (2) the lack of a grammatical "it"; and (3) the lack of "be" to express "being." This paper examines these three features and concludes that, from a linguistic point of view, none of these characteristics can be found to constitute any problem for scientific reasoning or other thought processes. (Author/AM)

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IS THE LANGUAGE RESPONSIBLE FOR THE LACK OF SCIENCE (OR CERTAIN PATTERNS OF THINKING) IN CHINESE CIVILIZATION?---A LINGUIST'S VIEW

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I. Introduction

The Chinese language has long been regarded, mostly by historians and philosophers, as an inadequate vehicle for developing science. The inadequacy is said to lie roughly in two areas: the subjectless nature of the Chinese sentence and the lack of a grammatical it.

Concerning the subjectless nature, Chu (1973:603) says: 'Without the subject-predicate pattern in sentence structure, the Chinese did not develop the idea of law of identity in logic or the concept of substance in philosophy, and without these concepts, there could be no idea of causality or science.'

In discussing Chinese grammar and logic, Chao (1976:246) poses the following rhetorical question for an inquirer: 'Since...scientific thought presupposes an objective consideration of neutral matter, would not, then, the lack of a grammatical it, and the consequent lack of the ability to consider objective, neutral matter, be the real explanation of failure on the part of the Chinese to develop a system of natural science before the advent of Occidental sciences?'

Related to the issue are the lack of a word for the English be or its equivalent in other Indo-European languages, the way to express abstract concepts and the relational nature of the language. Here we will only illustrate the general way philosophers feel about the lack of a word for be by quoting Cheng. (The other two problems are to be discussed in Section V.) In his study of the relationship between the Chinese language and Chinese philosophy, Cheng (1971:219) remarks, 'Classical Chinese has no singular

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copula for predication or for expressing identity. In fact, there was no genuine copula in early Chinese text and the various functions of the Indo-European copula (to be) are performed by various Chinese expressions.... One may therefore conclude that the Chinese language has no way of expressing universal being and therefore lacks metaphysical thinking.' Nevertheless, he presents the view only for the sake of argument.

Now let's examine the problems in some more detail.

II. Subjectlessness

It is true that the Chinese language has permitted subjectless sentences from the earliest known stage. But a permission for subjectless sentences to occur as grammatical is totally different from a lack of the subject-predicate structure. Furthermore, the subject-predicate relationship has been called into question as to its semantic significance, especially in a language like English where the subject can bear various semantic relations such as agentive, objective, instrumental, locative, etc.[1] On the other hand, the majority of the sentences documented in the early and late Archaic Chinese periods do have subjects.[2] There are, of course, utterances in Classical Chinese where there is no overt subject, but they can most often be supplied with 'understood' ones from the context.

(1) Fu zao zhe.
弗造哲 (大誥)
not become wise---'(I) have not yet become wise.'

Some others are existential in nature, where no real subject in its strict sense can be established in most languages.

(2)You da jian yu xi tu.
有大艱于西土(大誥)
have big difficulty at west soil---'There's serious trouble in the Western Territories.'

A few of them are genuinely subjectless, which are usually of such a general nature that they may be equated to an agentless passive or the 'people believe' type in English.

(3) Jiu-yue shou yi. (Book of Songs)
九月授衣
September give clothes---'In September, winter clothes are given out.'

The subjectless nature of a sentence has not changed much in modern Mandarin as well as in the other dialects.

Since subjectless sentences do not hinder any way of expression as compared with corresponding sentences in English, there seems to be no reason to conclude that their existence in Chinese should have had any effect on the development of scientic thinking in its culture.

III. The Grammatical <u>it</u>

The problem of the lack of a grammatical <u>it</u> in Chinese can be approached by looking at its functions in English. We will isolate its grammatical functions and try to pair them with Chinese expressions. Apart from being an anaphora, <u>it</u> may serve (i) as an anticipatory subject or object, (ii) as the subject of a meteorological event and of a statement of distance or time, (iii) as the subject of the cleft sentence, and (iv) in idioms. They are illustrated in (4) - (7).

(4) Eng: It's not easy to learn Chinese.

Chin: Xue-hui Zhongwen bu rongyi.
learn Chinese not easy

Eng: I made it clear that I didn't do it.

Chin: Wo shuode mingmingbaibai wo mei zuo.
I said-DE clear(ly) I didn't do

(5) Eng: It's 200 milesfrom here to Nashville.

Chin: Cong zher dau Nashville liangbai yingli.
from here to 200 mile

Eng: It's 10 o'clock now.

Chin: Xianzai shi dianzhong.
now 10 o'clock

Eng: It's raining.

Chin: Xia yu le./Yu xia le.[3]
fall rain LE/rain fall LE

(6) Eng: <u>It</u> <u>is</u> last Saturday that John bought the car.

Chin: John shi shang xingqiliu mai neiliang qiche de.[4]
<u>SHI</u> last Saturday buy that car <u>DE</u>

(7) English: Beat <u>it</u>! Sock <u>it</u> to me!

Except for (7), which we won't discuss for good reasons, there are definitely comparable devices in the Chinese language for the grammatical <u>it</u>. The differences seem to be more a result of the total language structure than of anything else. In (4), the first of the Chinese sentences is unable to move the subject ---or the topic, to be more exact---to the end of the sentence. This fact can in no way mean that Chinese is unable to view any neutral entity as objectively as the extraposition induces the English speaker to. In fact, extraposition has absolutely nothing to do with objectivity of view at all. On the other hand, the inability for the sentenceto undergo extraposition falls in nicely with the requirement that a noun phrase must occur preverbally if it is a topic. In (5), the <u>it</u> either fills a subject position, which would otherwise be left empty, or replaces an otherwise excessively redundant subject, i.e. <u>the distance</u> or <u>the time</u>. This <u>it</u> only reflects the overwhelming rigidity imposed on the English sentence structure even when there is no such a need insofar as meaning is concerned.

In (6), the only difference is that the Chinese sentence keeps the same word order as when there is no clefting. And there seems to be no reason to assume that a permutation of words like this should have any effect on the ability for scientific thinking.

From a linguistic point of view, therefore, the lack of a grammatical it in Chinese should not impair its ability for logic or science.[5] It certainly doesn't argue for 'a lack of ability to consider objective, neutral matter.'

The objectivity problem may have arisen from forms like (8), which is used to enhance objectivity in terms of writing style.

(8) It is believed/reported/ etc. that....

The objectivity here comes from the passive construction. It is true indeed that there is no corresponding passive in Chinese to translate such forms, but there are idiomatic expressions like those in (9) that semantically correspond to the English forms very closely.

(9)	ju bao....	xian xin....
	according-to report...	general believe/belief

IV. The Problem of Be and 'Being'

The allegation that classical Chinese doesn't have a copula like the be in English is only a gross over-generalization. On the one hand, Chinese, classical or modern, does have ways to express all the copulative functions that the English be does. (Among them one form may be called copula.) On the other hand, English and some other Indo-European languages subsume at least two categories of functions under the word be or its synonyms---i.e. existential and copulative. A. C. Graham (1967) summarizes the six functions of be paired with corresponding Chinese expressions as follows in (10) - (15).

Details and complications are left out from the examples as well as from the translations.

(10) Existence:

Eng: There is a man.

Chin: Sung you fu ren.
Sung YOU rich person
'Sung has a rich person/There is a rich person in Sung.'

Wu gui.
WU ghost
'(X) has no ghosts/There are no ghosts.'

(11) Copula with noun:

Eng: He is a man.

Chin: Yu ren ye.
I person YE
'I am a person.'

Bai ma fei ma.
white horse FEI horse
'A white horse is not a horse.'

(12) Identity:

Eng: He is Charles.

Chin: Same particles as in (11).

(13) Role:

Eng: He is a soldier.

Chin: Fang qi wei hu ye, bu zhi qi chang wei ren ye.
while he WEI tiger YE, not know he ever WEI person YE
'While he was a tiger, (he) did not know (that he) had been a person.'

(14) Copula with adjective:

Eng: He is tall.

Chin: Min (wei) gui, chun (wei) qing.[6]
people (WEI) honorable, ruler (WEI) unimportant
'People are honorable, rulers are unimportant.'

(15) Copula with location:

Eng: He is in Paris.

Chin: Wu suo bu zai
no place-where not at
'(There is) no place where (it is) not at, i.e. where it doesn't exist.'

These outline statements at least indicate that there is no function the English be performs that classical Chinese is not capable of expressing. One might argue, of course, as many philosophers have, that the Chinese language can not express the concept of universal being because of the existential form that it employs. As we see in (10), the existential verb is you, with wu as its negative counterpart, which is different from any copula. Now the argument goes like this: 'In Indo-European languages, a thing simply is, without implying anything outside it...But in Chinese one approaches the object from outside, from the world which has it, in which there is it.' (Graham, 1967:16) The fallacy of the argument actually comes from translation. The Chinese existential verb you is usually translated into English as have, and as such it must have a subject or possessor. If it has a subject or possessor, then the entity that follows the verb seems to be dependent on the subject of the sentence. Therefore, existence can not be approached without something outside the entity that exists. But if we remember that the subject is not always necessary in Chinese, then it is easy for us to conceive that when a Chinese says (16), he doesn't necessarily mean that somebody or some place has ghosts.

(16) You gui.
have ghost

He may simply be asserting that ghosts exist. The allegation that in Chinese one can not approach an object without implying anything outside it is actually a Western mentality with the verb have. In other words, such an argument is based on an obviously erroneous assumption that morphological identity of

possession and existence should always entail semantic or even conceptual identity regardless of syntactic or discourse context.[7]

It is even more groundless, of course, to assume that a language must be able to identify existence with the copular uses of the word be in order to develop logic. On the other hand, a language that does use the same form for existence and copular functions is more likely to confuse one with the other in reasoning. To give an example, let's look at the following passage.

The German philosopher Hegel states: 'Quality is, in the first place the character identical with being; thus, a thing ceases to be what it is, if it loses its quality.' The argument depends on the ambiguity of 'being'. In the first half of the statement, be means 'existence'. But unless it is equated to the be in the second half, the latter doesn't prove the former. That is, the fact that a thing ceases to be what it is by losing its quality doesn't prove that quality is the character identical with existence.

Finally, there is ample syntactic and semantic evidence for the emergence of a copula-like form as far back as late Archaic Chinese.[8]

V. Abstractness and Relational Thinking

Other factors that may have helped shape Chinese thought are the expression of abstract concepts and the relational nature of the language.

Abstract concepts constitute a problem for the Chinese language and therefor for Chinese thought because 'abstract and general ideas in a context are represented by the same words which in other contexts represent concrete and particular things.' (Cheng 1971:219) Graham (1967:16-17) also notes: 'A notable general difference between Chinese and Western philosophy is the prevalence in the terminology of the latter of abstract nouns of verbal or adjectival origin which tend to be treated as names of entity (Being, Essence,

Reality, the Absolute, Truth). In Chinese philosophy names so treated are often concrete nouns which come to be treated as metaphors---tao 'path' becoming the Tao, t'ien 'sky, heaven' becoming an impersonal power like our own Nature, hsin 'heart' becoming 'mind',[9] ch'i 'breath' becoming the prime material. Others are nouns formed from verbs, with or without change in pronunciation and in the written character.' Another difference is that verbal concepts are seldom treated as if they were nominal concepts because there are no morphological derivational processes and the same word may stand for a grammatical noun or verb depending on the position in which it occurs:

(17)a. Bie pao. (verb)
don't run
'Don't run.'

b. Pao (noun) dui shenti hao.
run to body good
'Running is good to the body.'

Graham continues on the same page,'Westerners sometimes have the impression that the Chinese cannot form abstract concepts; but what they do find difficult is to Platonize, talk about abstractions as though they were rarefied things.'

Graham may be right in his final remark, but, as all teachers of modern linguistics know, to conceptualize abstractions may vary greatly with individuals as well.

Concerning the relational nature of the language, Cheng (1971:218) has this to say: 'Whole determines part, and part is an "inadequate" representation of the whole.' By this remark, he obviously refers to the fact that in Chinese grammatical categories such as noun and verb and semantic notions such as definiteness, specificness and givenness are not determined at the morphological level, but at the syntactic level. Thus, in his conclusion, Cheng (1971:234) says, '...both Chinese logic and Chinese thought have their universal characteristics which are not contingent on Chinese language, whereas Chinese language, in so far as its grammar is concerned, seems to exhibit the basic points of Chinese philosophy, and indeed can be taken as a concrete illustration

of important Chinese philosophical principles such as that the whole is relevant for, and contributes to, the determination of the part in the whole.'

Unfortunately, this relational nature of the language and the relational thinking in Chinese philosophy have been considered unfit for science.[10]

VI. Conclusion

We have examined in some detail the characteristics of the Chinese language which allegedly are responsible for the lack of logical thinking and thus the lack of science in Chinese civilization. We find that the allowance for a subjectless sentence and the lack of a grammatical it are not significantly different from what is available in Western languages in terms of expressing those concepts. Therefore, they should not be held responsible for the lack of science. Furthermore, the lack of a word for be should not constitute a handicap in the formation of the concept of universal being, therefore doesnot hinder metaphysical thinking. On the other hand, it is likely to be harder in the Chinese language than in Western languages to form abstract concepts ---that of universal being among them---from concrete ones in the absence of morphological processes for derivational purposes. This certainly has more to do with metaphysical thinking in philosophy than with logical thinking for science. Finally, the relational nature of the language is prominently reflected in Chinese philosophy. But this should not be taken to be mutually exclusive with logical thinking; probably it should rather be complementary to logical thinking in the development of science.

Notes

1. See Fillmore (1968).

2. See Dobson (1959 & 1962), Wang (1958) and Chou (1961).

3. The difference in word order has to do with the definiteness of the noun. Le may be either a perfective aspect marker or a change-of-status particle, or a haplological form of both (see Chao, 1968:247).

4. Shi indicates a focus and de a presupposition. (For the function of the latter, see Chu, forthcoming.)

5. Extraposition, involved in (4), may be viewed as a process serving some communicative function---i.e. ease of processing. (See Stockwell, 1977, Chap. 6.) But whether it is easier to process a heavy construction at the beginning or at the end of a sentence seems to depend heavily on the basic word order---i.e. SVO or SOV.

6. Wei here is for contrast, though in exactly the same position as a be in a corresponding English expression.

7. For a fuller discussion of similarities and differences between existence and possession, see Lyons (1968:388-397).

8. See Chu (1970:159-175).

9. One says 'to remember by heart' in English too.

10. See, for instance, Chu (1973:603).

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